PREVENTION OF SIGNIFICANT DETERIORATION (PSD) PERMIT

Issued To:	Northwest Pipeline LLC
Facility Name/Location:	Mount Vernon Compressor Station 1539 Lange Road, Mount Vernon, Washington
Permit Number:	PSD 01-09, Amendment 7
Date of Permit Issuance:	January 24, 2020
Effective Date of Permit:	January 24, 2020

This PSD permit is issued under the authority of the Washington State Clean Air Act, Chapter 70.94 Revised Code of Washington; the Washington State Department of Ecology regulations for the Prevention of Significant Deterioration of Air Quality as set forth in Washington Administrative Code 173-400-700 through 750.

PREPARED BY:

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1/23/2020

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1/24/2020

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Project Description

The Northwest Pipeline LLC (NWP) operates a natural gas pipeline system from the Washington-Canada border near Sumas, Washington, to the San Juan Gas Fields in New Mexico. The gas pipeline system serves commercial, industrial, utility, and cogeneration customers in Washington, Oregon, Nevada, and California. The Mount Vernon Compressor Station is located about five miles east of Mount Vernon, Washington, and assists in the transport of natural gas from the Sumas Compressor Station to the Snohomish compressor station.

For this permit amendment, NWP has requested to revise the nitrogen oxide (NO_X) monitoring requirements for the Mars 90S and Centaur 50S combustion turbines. NWP proposes to monitor the NO_X emissions using a portable emission analyzer at least once every 4,380 hours of operation. NWP also proposes to remove the requirement to verify the accuracy of portable analyzers not less than once every calendar year in conjunction with the stack tests.

This permit amendment also streamlines the existing permit conditions to provide better clarity of the requirements. See more discussion regarding the changes in the technical support document for this amendment.

The emission units affected by this permit are listed below.

Emission Unit Description	Design Capacity
Solar Mars 90-T13002S gas turbine	100.3 MMBtu/hour @ 59°F
Solar Centaur 50-T6100S gas turbine	54.93 MMBtu/hour @ 59°F
Sellers C-80-W water heater/boiler	3.35 MMBtu/hour
Caterpillar-G3412, emergency electrical generator	450 kW

Approval Conditions

1. The Mars 90S turbine, the Centaur 50S turbine, the standby generator, and the Sellers C-80-w heater/boiler being installed for this project are only allowed to burn natural gas from the pipeline.

   NWP shall monitor and report (see Condition 20) the analytical data from the Sumas monitor location regarding the chemical composition of the fuel used to comply with this condition.

2. NWP shall operate the standby generator no more than 500 hours in any consecutive 12-month period. NWP shall record the time of operation of the standby generator with an hour meter. NWP shall not reset the hour meter without written authorization of Ecology or Northwest Clean Air Agency (NWCAA).

3. NO_X emissions from the standby generator are limited to not greater than 82 grams per hour.

4. Compliance with the standby generator NO_X emission limit shall be determined in accordance with 40 CFR 60 Appendix A, Methods 2, 2A, 2C, or 2D, and Method 7E, or by using a portable emission analyzer in accordance with USEPA Designated Conditional Test Method 34.

5. NWP shall monitor compliance with the NO_X emission limit for the standby generator at least once every 500 hours of operation. NWP shall run the generator at maximum achievable load during the compliance test. NWP shall determine the emissions rate in units of grams per hour by using the compliance test results in applicable engineering calculations.

6. The NO_X emissions concentration from the Sellers C-80-w boiler stack is limited to not greater than 34 parts per million on a dry volumetric basis (ppmdv) over a 3-hour average when corrected to three percent oxygen.

7. Compliance with the Sellers C-80-w boiler NO_X emission concentration limit shall be determined in accordance with 40 CFR 60 Appendix A, Methods 7E and 19, or by using a portable emission analyzer in accordance with USEPA Designated Conditional Test Method 34.

8. NWP shall monitor compliance with the NO_X emission concentration limit for the Sellers C-80-w boiler not less frequently than once every five years of operation.

9. NO_X emissions from the Sellers C-80-w boiler are limited to not greater than:

   a. 4.0 lb/calendar day.

   b. 0.66 tons in any 12 consecutive months.

10. NWP shall monitor compliance with Condition 9 by:

a. Keeping a log of the operating hours for the boiler.

b. Using the most recent test results required by Condition 6 or 7.

c. Assuming maximum achievable fuel consumption for all boiler-operating hours.

d. Using the appropriate F-factor from 40 CFR Part 60, Appendix A Method 19 to estimate exhaust gas volumetric flowrate.

11. For the Mars 90S and Centaur 50S combustion turbines:

a. Start-up is defined as any operating period that is ramping up from less than 90 percent of full load, and less than 15 minutes has elapsed since fuel was introduced to the turbine after the immediately preceding shutdown.

b. Shutdown is defined as any operating period below 90 percent of full load, and fuel feed has continued for not more than 15 minutes after going below 90 percent of full load operation.

c. NWP shall keep a record of each start-up and shutdown event.

12. The Mars 90 combustion turbine is subject to the following emission limits:

a. Not greater than 25 parts per million NO_X emission concentration on a dry volumetric basis (ppmdv) over a 1-hour average when corrected to 15.0 percent oxygen, ISO. This limit does not apply during start-up and shutdown as defined in Condition 11.

b. 258 lb NO_X/calendar day, including the NO_X emission during start-up and shutdown.

c. 43.6 tons of NO_X for any consecutive 12-month period, including the NO_X emission during start-up and shutdown. NWP shall assume 4 lb NO_X per start-up or shutdown to account for NO_X emission during start-up and shutdown.

13. The Centaur 50S combustion turbine is subject to the following emission limits:

a. Not greater than 25 parts per million NO_X emissions concentration on a dry volumetric basis (ppmdv) over a 1-hour average when corrected to 15.0 percent oxygen, ISO. This limit does not apply during start-up and shutdown as defined in Condition 11.

b. 106 lb NO_X/calendar day, including the NO_X emission during start-up and shutdown.

c. 18.5 tons of NO_X for any consecutive 12-month period, including the NO_X emission during start-up and shutdown. NWP shall assume 2 lb NO_X per start-up or shutdown to account for NO_X emission during start-up and shutdown.

14. NWP shall demonstrate annual compliance with Conditions 12.a & b and Condition 13.a & b no later than 13 months after the previous test. In addition, NWP shall also demonstrate

compliance with Conditions 12.a & b and Condition 13.a within 60 days after each engine exchange. Compliance shall be demonstrated in accordance with 40 CFR 60 Subpart GG and 40 CFR 60 Appendix A, Method 20 except that the instruments span shall be reduced as appropriate. The turbine shall be operated at representative maximum operating rate during the annual compliance test.

15. To demonstrate compliance with Condition 12.c and 13.c, within 20 days of the end of each month, NWP shall determine the tons of NO_X emissions from each of the turbines for the most recent consecutive 12 months. For this calculation, NWP shall utilize a time-weighted average of the relevant reference method stack test results wherein the results of each source test shall be the presumed emission rate until the next source test.

16. In addition to the compliance test required by Condition 14, NWP shall monitor compliance with Condition 12.a and 13.a by measuring NO_X concentration at least once every 4,380 hours of turbine operation from each turbine exhaust stack using portable emissions analyzer testing in accordance with USEPA Designated Conditional Test Method 34. An alternate test method may be used if approved in writing by Ecology or NWCAA at least 30 days prior to its first application.

17. For the monitoring requirements required by Condition 16, NWP shall:

    a. Use a portable emissions analyzer capable of adjustment to the 15 percent oxygen concentration basis.
    b. Perform three consecutive tests using the portable analyzer.

18. Should the average of the three test results required by Condition 16 & 17 indicates potential noncompliance with Condition 12.a or 13.a, NWP shall shut down the unit as soon as is practical and contact the NWCAA as promptly as possible and in no event more than 12 hours later. Exceedance of the limit as indicated by the average of the three consecutive tests shall be prima facie evidence of a violation of Condition 12.a or 13.a.

19. NWP shall report the monitoring and process data from MVCS to Ecology and NWCAA not less than once each calendar quarter or on another reporting schedule approved by Ecology, and in the format approved by Ecology.

20. The reports required by Condition 19 shall include, but not necessarily be limited to, the following:

    a. Certification by the responsible party for the facility that only natural gas from the pipeline has been used as fuel.

    b. Analytical data on the fuel composition per Condition 1.

    c. Certification by the responsible party for the facility that the relevant equipment was operated and maintained in accordance with the operational parameters and practices developed pursuant to Condition 23.

d. For the standby generator:

i. Total hours of operation for the 12 immediately preceding months.

ii. The total NO_X mass emissions for the 12 immediately preceding months.

iii. Results of any compliance monitoring source tests performed since the last report.

e. For the Sellers C-80-w boiler:

i. The total NO_X mass emissions for the 12 immediately preceding months.

ii. Results of any compliance monitoring source tests performed since the last report.

f. For each combustion turbine stack:

i. All exhaust stack NO_X concentrations since the last report pursuant to measurement under Conditions 16.

ii. The total NO_X mass emissions for the 12 immediately preceding months ending with each month included in the report.

iii. Results of any compliance monitoring source tests received since the last quarterly report required by this permit. If reported separately, these results need not be duplicated in the quarterly reporting.

g. For each occurrence of NO_X monitored emissions in excess of the limits in Conditions 12.a and 13.a:

i. The time of the occurrence.

ii. Magnitude of the emission or process parameters excess.

iii. The duration of the excess.

iv. The probable cause.

v. Corrective actions taken or planned.

vi. Any other agency contacted.

21. NWP shall maintain MVCS monitoring and process records for at least five years. NWP shall inform Ecology and NWCAA on the location of the monitoring and process records. NWP shall provide Ecology and NWCAA with the monitoring and process records for any period within the 5-year archive, within 10 working days of request.

22. The monitoring and process records maintained in the 5-year archive shall include, but not necessarily be limited to, the following:

    a. Fuel monitoring records pursuant to Condition 1.

    b. Operating time records of the standby generator.

    c. Operating hours records of the Sellers C-80-w boiler.

    d. Record of start-ups and shutdowns for the Mars 90S and Centaur 50S turbines.

23. NWP shall identify operational parameters and practices for the standby generator, the Sellers C-80-w boiler, and the combustion turbines. The operational parameters and practices will constitute proper operation relative to compliance with the emission limitation conditions of this permit. The operational parameters and practices shall be included in an Operation and Maintenance (O&M) manual. As a minimum, these shall include:

    a. Manufacturers' operating instructions and design specifications.

    b. Normal operating parameters and design specifications.

    c. Updates to reflect any modifications of the equipment or its operating procedures.

    NWP shall keep the MVCS O&M manual up to date. NWP shall assure that the MVCS O&M manual is readily available at the facility for review by state, federal, and local agencies.

24. Nothing in this determination shall be construed to relieve NWP of its obligations under any state, local, or federal laws or regulations.

25. This permit cancels and supersedes PSD No. 01-09, Amendment 6.